



Attorney docket number: 1979.EEM

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Patent Application of: MA et al.	Group Art Unit: 2827
Serial No. 10/020,638	Examiner: MITCHELL, James M.
Filing date: 14 DEC 2001	Date this paper: 01 MAR 2004
Title: Dual Cure B-Stageable Underfill for Wafer Level Underfill	

37 C.F.R. 1.56
COPENDING U.S. PATENT APPLICATIONS

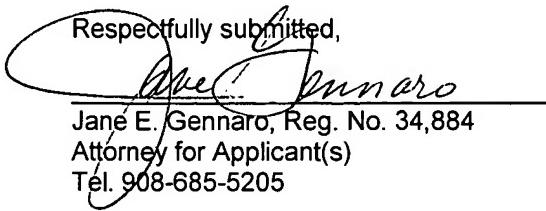
Commissioner for Patents
Alexandria, Virginia

Sir: Applicants and Assignee of the above-identified patent application hereby advise the Examiner of the existence of a commonly owned copending United States Patent application that may be considered material to the prosecution of the above-identified application.

Atty Doc No.	Serial Number	Filing Date	Status
1978.EEM	10/016,844	14 DEC 2001	Pending

Applicants and the Assignee do *not* waive any confidentiality concerning the copending application (Medical Laboratory Automation, Inc. v. Labcon, Inc. 208 USPQ 764,766 (N.C. Ill., 1980)). Furthermore, if any copending application does not mature into a patent, the copending application should be preserved in secrecy under the provisions of 35 USC §122 and 37 CFR §1.14.

Respectfully submitted,


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Application control number 10/020,638

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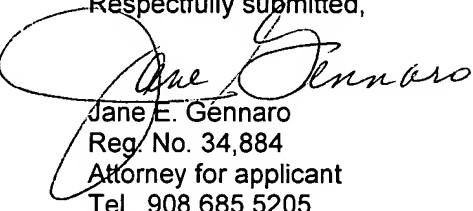
Title: Dual Cure B-Stageable Underfill for Wafer Level

To: Commissioner for Patents
Alexandria, Virginia

INTRODUCTION

This submission contains the claims as allowed in the parent filing and art for consideration that has been disclosed in a related case or corresponding foreign applications.

Respectfully submitted,


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Application control number 10/020,638

LISTING OF CLAIMS

Claim 1	currently amended
Claims 2-6	canceled
Claim 7	currently amended
Claims 8 to 12	canceled



TEXT OF CLAIMS CURRENTLY UNDER EXAMINATION

1. (previously amended) A silicon wafer having a B-stageable underfill material deposited on one face of the wafer, the B-stageable underfill comprising a combination of two chemical compositions,
 - a first composition, selected from the group consisting of acrylic compounds; cycloaliphatic epoxy compounds; bismaleimide compounds; and bismaleimide compounds in combination with vinyl ether, vinyl silane, styrenic or cinnamyl compounds; which has been cured at a temperature within the range of 100°C to 150°C, and
 - a second composition that is an uncured epoxy compound and a complex of 1 part 1,2,4,5-benzenetetracarboxylic anhydride and 4 parts 2-phenyl-4-methylimidazole, or an uncured epoxy compound and a complex of 1 part 1,2,4,5-benzenetetracarboxylic dianhydride and 2 parts 2-phenyl-4-methylimidazole,
 - the first composition, before cure, being a liquid, or a solid dissolved or dispersed in a solvent;
 - the second composition, before and after cure of the first composition, being a solid or semi-solid material at room temperature, dispersible or dissolvable either in the first composition if the first composition before cure was a liquid, or in the solvent for the first composition if the first composition before cure was a solid dissolved or dispersed in a solvent;
 - the curing temperatures of the first and second compositions being separated by at least 30°C to allow the first composition to cure without curing the second composition.
7. (previously amended) A B-stageable underfill composition comprising a combination of two chemical compositions,
 - a first composition that is a liquid, or a solid dissolved or dispersed in a solvent, curable at a temperature within the range of 100°C to 150°C, and that is selected from the group consisting of acrylic compounds; cycloaliphatic epoxy compounds; bismaleimide compounds; and bismaleimide compounds



in combination with vinyl ether, vinyl silane, styrenic or cinnamyl compounds; and

a second composition that is a solid or semi-solid at room temperature, dispersible or dissolvable either in the first composition if the first composition is a liquid, or in the solvent for the first composition if the first composition is a solid dissolved or dispersed in a solvent, and that is an epoxy compound and a complex of 1 part 1,2,4,5-benzenetetracarboxylic anhydride and 4 parts 2-phenyl-4-methylimidazole, or an epoxy compound and a complex of 1 part 1,2,4,5-benzenetetracarboxylic dianhydride and 2 parts 2-phenyl-4-methylimidazole,

the second composition having a curing temperature or curing temperature range higher than the curing temperature or curing temperature range of the first composition,

the curing temperatures or curing temperature ranges sufficiently separated to allow the first composition to cure without curing the second composition.